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ABSTRACT

The interactions of severely handicapped and nonhandicapped students in integrated educational settings were evaluated, based on observations made in 1981 and 1982. Data based on 2 hours of observation (on different occasions) for each of 235 severely handicapped students were collected in the fall, and data based on 2 hours were collected in the spring. Four levels of information about social interaction were obtained: (1) a general physical description of the setting in terms of the people present and the kind and size of the room, (2) a specific characterization of the place in which the observation was done, (3) a specific description of the task confronting the student and the other people involved, and (4) continuous event sampling of the interactive behaviors that involved the student. From these observations, specific interaction measures were derived as follows: the number of opportunities for interaction and the number of interactions directed by the student to others, the mean length of interactions, and the social affect of the interaction opportunities. It was found that integrated contexts including both severely handicapped and nonhandicapped students can produce more social behavior from the handicapped students toward other students. Social behavior had a positive effect in integrated in comparison to segregated settings. Finally, there was considerable variation in the rates of social bids of all parties. A list of about 48 references is appended. (SEW)

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The Rate and Quality of Social Behavior of Severely Handicapped Students in Integrated and Nonintegrated Settings

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Introduction

The Education for All Handicapped Children Act (PL 94-142) requires that all children have access to free appropriate public education in the least restrictive setting. The least restrictive setting is a concept which requires definition for each handicapped child. There are large differences in professional opinion regarding the boundaries within which these individualized definitions might fall (Burton & Hirshoren, 1979; Sontag, Certo, & Button, 1979). From the perspective of normalization (Wolfensberger, 1972) the least restrictive setting would be one offering the "normal" range of opportunities and experiences to which children of a given age have access such that these experiences do not provide an impediment to the handicapped child's educational goals. Public Law 94-142 places the burden of proof upon the educator to demonstrate that any exclusionary educational placements are in the best interest of the handicapped child. Although PL 94-142 was clearly an outgrowth of increased acceptance of the concept of normalization (Bricker, 1978) the confusion remains as to whether "least restrictive alternative" implies integration of handicapped children (Meyers, MacMillan, & Yoshida, 1975). This confusion is aptly expressed in the fact that the largest number of complaints to the U.S. Office of Education, Special Education Programs, regard the least restrictive environment issue (U.S.O.E., 1982). The possibility of integrating severely and profoundly handicapped individuals has generally been ignored except in the most innovative school systems (Galloway & Chandler, 1978; Sailor, & Haring, 1977; Stainback & Stainback, 1981).

As with any form of social integration, the integration of handicapped individuals within society can occur in many different degrees and forms. Integration can involve merely the physical presence of members from different groups on

the same premises. By this standard the pre-Civil War South might be regarded as having been racially well integrated. Obviously a more desireable form of integration includes not only physical integration but also integration in terms of social interactions. The idealized endpoint of the continuum of integration in education has been embodied in the concept of mainstreaming (Kaufman, Gottlieb, Agard, & Kukic, 1975). Mainstreaming implies the physical, social, and educational integration of handicapped and nonhandicapped children. The mainstreamed handicapped child would not only be on the same physical premises as the nonhandicapped child, he/she would also interact with the nonhandicapped child. In addition, the handicapped child would participate in the same educational context as the nonhandicapped child although the educational goals and educational process might be adapted to accommodate the handicapped child. Logically mainstreaming would appear to be one definition of the least restrictive alternative with restrictions being placed on the amount and types of integration only as such restrictions are justified as the necessary cost of acnieving particular educational goals. For most severely handicapped students the goal of mainstreaming will not be possible since the educational goals and processes must be modified considerably for this population. However, social and physical integration may be possible for severely handicapped students without sacrificing educational goals.

The concept of integration may be viewed as a social goal established in hard fought legal battles by groups of handicapped persons and their advocates (Bricker, 1978; Gilhool & Stutman, 1978). These battles have been won on the constitutional grounds that all U.S. citizens have equal protection under the law and the protection of the law cannot be abrogated without due legal processes. Hence, any discriminatory practices in education are legal only if benefits accrue to handicapped individuals through these practices and only if these benefits are judged by the handicapped individuals and their advocates to be worth the costs of exclusion from the normal range of experiences. Such restrictions will be inevitable

for the severely handicapped child, but the burden of proof now rests with the educator to demonstrate that removal from the mainstream will in fact produce the benefits for which such removal was designed.

Segregated Special Education. Educational policy in England, Scotland, and Wales has resulted in a system of completely segregated schools for severely/profoundly handicapped (Educationally Subnormal Severe, ESN(S)) and moderately handicapped students (Educationally Subnormal Moderate, ESN(M)). A number of researchers have observed the interactions which take place between children in ESN(s) schools (Swann & Mittler, 1976; Beveridge & Berry, 1977; Beveridge & Evans, 1978; Beveridge, Spencer, & Mittler, 1978). They have generally found that there is a very low level of interaction in such environments. For example, in two classrooms for 5 to 10 year old children only 10 and 6 interactions were initiated respectively, by any child in the group (between six and eight children) during four hours of observation (Beveridge & Berry, 1977). These groups did not include profoundly handicapped children. In ESN(s) classrooms children between 10 and 15 years of age (N=14) initiated on the average 20 interactions in an hour (range 1 to 60, S.D. 15). In both studies all verbal and nonverbal interactions, were recorded. It is interesting to compare this data to that collected by Brinker using the method reported in Brinker & Goldbart (1981). All the children in that study were under 5 years of age and participated in an integrated preschool intervention program at the University of Manchester in England (Hogg, 1979). The Down's syndrome children in that study used an average 47 single word and 15 multiword utterances in one hour period. Severely handicapped children used an average 22 single word and 12 multiword utterances in one hour. Since the data reported by the Beveridge group has been replicated several times, the implication would be that the preschool children, all of whom would eventually be classified administratively as ESN(s), would show no significant increase in their verbal interactive behaviors for the next 5 to 10 years of their life. The important point is that at age five some school appropriate

language behavior was used in an integrated preschool context but may not be required in a context in which only severely handicapped children are present. Beveridge and Tatham (1976) have shown that the language competence of severely handicapped adolescents was not being demonstrated in their daily interactions at school. However, teaching role-taking skills did facilitate these children's utilization of their language skills at school. Finally, Beveridge and Hurrell (1979) demonstrated that very few verbal initiations by severely handicapped children were responded to by teachers in ESN(s) schools.

This documentation of the socially restrictive nature of segregated special schools has not been brightened by data demonstrating the positive benefits of segregated special education for handicapped children in America (Dunn, 1968; Filler, Robinson, Smith, Vincent-Smith, Bricker, & Bricker, 1975). The importance of one-to-one instruction for severely handicapped children is almost universally accepted (Sailor & Haring, 1978). However, the possibility that severely handicapped individuals could learn from appropriately constructed social routines which include other children has largely been ignored. Very little of the available research about severely handicapped students describes the differences and regularities of their behavior as a function of their typical social and physical environment (Beveridge & Brinker, 1981; Brooks & Baumeister, 1977; Stainback & Stainback, 1981). Nevertheless, the development of social skills which are used in the right social contexts is perhaps the fundamental educational need of severely handicapped individuals.

Children's Behavior in Integrated Settings

There has been very little research on the interactions which occur when handicapped and nonhandicapped children are integrated in school. What has been done has primarily concentrated on mildly to moderately handicapped children or preschool children (Jones, Gottlieb, Guskin, & Yoshida, 1978; Guralnick, 1978; Porter, et al., 1978). The rationale for the benefits for handicapped children

of integration is considerably clearer than the documentation of such benefits (Bricker, 1978; Guralnick, 1978; Hartup, 1978). The major arguments would include: a) handicapped children may learn new behaviors by imitating behavior of nonhandicapped peers; b) nonhandicapped children would offer a wide range of challenging experiences from which the handicapped child may have been sheltered but which may nevertheless be necessary for development; c) nonhandicapped children provide teachers and therapists with developmental models which will improve their understanding of the patterns and variations in development. All of these potential benefits presume some degree of interaction or the opportunity for interaction between handicapped and nonhandicapped students.

In general, studies have shown that the mere physical integration of severely handicapped children with nonhandicapped children does not result in positive behavioral changes in either group (Bell, 1977; Devonney, Guralnick, & Rubin, 1974; Fredericks, Baldwin, Grove, Moore, Riggs, & Lyons, 1968; Preninger, 1968). After such integration, there will not necessarily be an increase in interaction such that the handicapped children could learn by modeling the nonhandicapped children or such that nonhandicapped children will develop a more nurturing, caring attitude towards children different from themselves. Several investigators (Porter, Ramsey, Tremblay, Iaccobo, & Crawley, 1978; Michell, 1979; Ray, 1974) have found that nonhandicapped children interact more frequently with other non-handicapped children in integrated settings.

Gampel, Gottlieb and Harrison (1974) demonstrated that mildly retarded children who were integrated into regular classes when compared to children who

remained in special classes a) emitted fewer negative verbalizations to peers, b) were the brunt of fewer negative verbalizations, and c) emitted more prosocial behavior relative to their own behavior in a segregated special class prior to being integrated.

The behavioral studies both in preschool and school settings lead to the conclusion that settings which include handicapped and nonhandicapped children have a wider range of stimulation which could be potentially beneficial to handicapped children. This wider range of opportunity is particularly dramatic when placed in contradistinction to the studies by Beveridge and colleagues conducted in the segregated special schools of England. However, merely placing children together in the same context does not guarantee that these opportunities will in fact be actualized. To our knowledge, no studies actually measure the amount of time that handicapped and nonhandicapped children spend together during the school day nor the different contexts and settings in which interactions may occur. This descriptive information is important to obtain since certain situations may facilitate interaction whereas others may restrict it.

Social Skills as a Definition of Handicap

Historically, the definition of handicaps has been in terms of social skill deficiencies rather than psychometric criteria (Bialer, 1977). In the following discussion, we are concerned with severely handicapping conditions although the research typically refers to mental retardation. The severity of handicap was the degree to which an individual needed the mediation of another person in order to be in society (Tregold, 1937). The greater the required mediation by others, the greater the severity of the handicap. The concept of retardation emerged as a societal response to individuals whose social skills were inadequate or different (Sarason & Doris, 1979; Gould, 1981; Wolfenberger, 1972).

Hobbs (1966, 1975) has proposed a model of classification of individuals as handicapped which is based upon social competence defined within an interactive system. Thus, the definition of a handicap is a relative concept which requires analysis not only of the behavior of the child, but also of the social ecology of the child and of the resources necessary to ameliorate the handicap. The ameliorative process can and should focus on changing the demands of the environment as well as on changing the child.

Social Skills as Context Specific

The contextual and cultural relativity of behavior has been recognized increasingly in the past decade. Nevertheless, an ecological or interactionist position for classifying persons as handicapped fundamentally is a mechanism for relating an individual to a social environment (Beveridge & Brinker, 1980). The relationship specifies some limitation in the social contexts within which the individual is expected to interact and/or limitations in the types of commerce possible within a social environment. As the number of contexts within which an individual can interact increases and as the complexity of social interactions within contexts increases, the level of an individual's handicap decreases.

From this perspective intervention in the social development of the handicapped student must focus on the processes by which the child's interactions become more complex as well as upon the processes by which the child's social network progressively changes the definition of acceptable social behavior. Although skills which are a necessary part of social development may be taught in situations outside of the social context (Cooke & Apolloni, 1976; Fredericks, Baldwin, Grove, Moore, Riggs, & Lyons, 1968), it is not clear that they will be used appropriately in everyday situations (Beveridge & Brinker, 1980; Beveridge & Tatham, 1976; Brown, Nietupski, & Hamre-Nietupski, 1976; Stokes & Baker, 1976). Moreover, the relevant aspects of these skills may not be found in a task analysis of the skills themselves,

but rather in an analysis of aspects of the interactive contexts in which the skills should be used (Lewis, 1977). Thus, the development of social skills requires an analysis of interactions in natural social contexts.

The Concept of Social Intelligence

Greenspan (1979) has reviewed the concept of social intelligence as it applies to handicapped persons. The concept of social intelligence in Greenspan's view would include such variables as role taking, social inference about the behavior of others, social understanding of social institutions and social processes, comprehension of consistent personality characteristics and motivations of other individuals, moral judgment, referential communication about one's perceptions, thoughts, and feelings. The little available research suggests that these aspects of social competence emerge in the interactive routines in which children participate regularly (Nelson, 1981; Flavell, 1977; Shatz, 1975).

A major purpose of the evaluation project was to describe the interactions of severely handicapped and nonhandicapped students in integrated educational settings. What we have analyzed thus far of those interactions constitutes a first pass at the data. This analysis will provide the foundation for subsequent questions about the process of facilitating social interactions of severely handicapped students. However, the data do address some important basic questions about integration and whether in fact integration provides severely handicapped students with opportunities to interact with nonhandicapped students.

In each of the sites, we observed severely handicapped students in the fall of 1981 and the spring of 1982. The one exception to that rule was in Philadelphia, where the teacher's strike prevented observations in the fall. For these analyses, the data from Philadelphia were from the spring observations.

Integration Contexts

The target students were selected from integrated schools within each site and informed consent was obtained for each of the target students. Teachers suggested the contexts in which each target student engaged in the greatest number of interactions with nonhandicapped students or had the greatest opportunity to do so. In addition, the teachers suggested for each target student the non-integrated context in which the most interactions between handicapped students occurred. The integrated contexts suggested and the number of severely handicapped students observed in each are presented in Table 1. The proportions are the proportion of severely handicapped target students whose most interactive integrated context was the one indicated.

It is clear from Table 1 that the majority of integrated contexts in which teachers estimate that severely handicapped students have the most interactions with nonhandicapped students are extrascholastic social contexts. Within such contexts the objectives are more clearly social and interactions would not be regarded as a disruption of school activity as they might be regarded in academic classroom contexts.

Observational Data Being Collected

Two hours of observation for each of the approximately 240 severely handicapped target students were collected in the fall and 2 hours were collected in the spring Each two hours of observation per student are made up of separate observations of 10 minutes each on separate days. This composite picture we believe will be more representative of an individual target students' interactions than a continuous two hours of observation because such a composite captures the daily fluctuations in behavioral state which characterizes many severely handicapped students.

TABLE 1 Proportion and Numbers of Severly Handicapped Students Being Observed in Integrated School and Community Contexts

SITES / CONTEXTS	Philadelphia	BIRMINGHAM	DEKALB	LA GRANGE	SPRING LAKE PARK	GRNAD ISLAND	LINCOLN	MEDFORD	BARRE	BENNINGTON	LAKE WASHINGTON	U. OF WASHINGTON	TACOMA	MADISON	TOTAL
LEISURE ACTIVITIES															
Unstructured Free Play		.21 (5)						.08 (2)						.16 (5)	.05 (12)
Structured Free Play		.25 (6)	.33 (5)		.11 (2)		.12 (2)	.16 (4)					.18 (3)	.13 (4)	.09 (21)
Recess		.16 (4)				.10 (1)		.28 (7)	.13 (2)	.28 (2)					.09 (21)
Gross Motor Play					.22 (4)										.02 (4)
PHYSICAL EDUCATION															
Swimming					.17 (3)							.45 (5)			.03 (8)
Locker Room												.55 (6)			.02 (6)
Gym	.12 (3)		.67 (10)		.11 (2)	.20 (2)		.20 (5)						.03 (1)	.10 (23)
Independent Liying/Vocational															
Community Setting	.12 (3)								.27 (4)		.20 (3)			.03 (1)	.05 (11)

TABLE 1 Proportion and Numbers of Severly Handicapped Students Being Observed in Integrated School and Community Contexts

SITES / CONTEXTS	Philadelphia	BIRMINGHAM	DEKALB	LA GRANGE	SPRING LAKE PARK	GRNAD ISLAND	LINCOLN	MEDFORD	BARRE	BENNINGTON	LAKE WASHINGTON	U. OF WASHINGTON	TACOMA	MADISON	TOTAL
Homemaking/cooking					.11 (2)						.07 (1)			.03 (1)	.02 (4)
Work Site				.30 (3)							.13 (2)			.06 (2)	.03 (7)
MISCELLANEOUS SCHOOL															
Lunch		.25 (6)		.10 (1)	.06 (2)	.30 (3)	.12 (2)	.28 (7)	.53 (8)	.71 (5)	.53 (8)		.29 (5)	.16 (5)	.22 (52)
Hallway				.20 (2)		.40 (4)			.07 (1)					.13 (4)	.05 (11)
Library		.08 (2)													.01 (2)
General Peer Tutoring	.75 (18)			.40 (4)										.10 (3)	.10 (25)
Occupational Therapy							.12 (2)						.24 (4)		.02 (6)
ACADEMIC															
Math (w.aid)													.06 (1)		.004 (1)

TABLE 1 Proportion and Numbers of Severly Handicapped Students Being Observed in Integrated School and Community Contexts

SITES / CONTEXTS	Philadelphia	BIRMINGHAM	DEKALB	LA GRANGE	SPRING LAKE PARK	GRNAD ISLAND	LINCOLN	MEDFORD	BARRE	BENNINGTON	LAKE WASHINGTON	U. OF WASHINGTON	TACOMA	MADISON	TOTAL
Reading (w/aid)													.06 (1)		.004 (1)
Music		.04 (1)					.41 (7)							.10 (3)	.05 (11)
Art					.06 (1)								.18 (3)	.06 (2)	.02 (6)
Language Arts					.11 (2)		.24 (4)				.07 (1)				.03 (7)
TOTAL	(24)	(24)	(15)	(10)	(18)	(10)	(17)	(25)	(15)	(7)	(15)	(11)	(17)	(31)	239

Two observational procedures were used, one hour of observation with each procedure during the fall data collection and one hour for each in the spring. Both observational procedures were constructed to provide four levels of information about social interactions.

The first level provides a general physical description of the setting in terms of the people present, the kind of room (e.g., classroom, lunchroom, etc.), and the size of the room. The second level provides a more specific characterization of the place in which the observation is done. The third level provides a specific description of the task confronting the target student, the other people involved in that task and the extent of differentiation of the target student's task relative to the tasks of others present. The fourth level of observation involves continuous event sampling of the interactive behaviors which involve the target student.

Thus, the observer's task begins by indicating what room of the school they're in, what adults and children are present, and the size of the area. Then they complete an overview of the way in which the environment is organized. The questions asked are:

1. Are these materials accessible to most of the students?
2. Is it a crowded room or are there few people?
3. Is the room noisy or quiet?
4. Are there many contrasts between bright and dark areas?
5. How are the materials organized or grouped in the room?
6. How is the room divided up?
7. Are the activities and materials age-appropriate?

The focus of the observation then shifts specifically to the target student. We record what activity the target student is engaged in and what teaching techniques are being used with the target student. Is the target student part of a group or is he isolated? Who is in the group with the target student? Is the target student's activity different from that of other members of his group? Is the level of participation in an activity different from other members in the group.

After all these general contextual observations are made, the observer begins her ten minutes of observation of the target student. When any of the contextual information changes, it is recorded along with the time at which the change occurred. The specific behavior recorded during the observation is the number of interactions between the target student and another person. Thus, any time that another person directs their behavior to the target student or the target student directs behavior to another person, the identity of the other person is noted. The observational procedures thus capture the number of interactions a) between target students and nonhandicapped students, b) between target students and teachers, aids and therapists, c) between target students and other handicapped students. The person who initiated the interaction is recorded and the number of exchanges between the parties involved in the interaction are also noted in a continuous fashion as long as the interaction occurs. In addition, the social affect (crying being angry, smiling, laughing) is noted for each behavior of each participant in the interaciton.

From these observations the specific interaction measures which will be derived will be the following:

1. The number of opportunities for interaction with the target student.
2. The number of interactions directed by the target student to others.
3. The mean length of interactions i.e. the average number of exchanges between two people in a continuous interaction.
4. The social affect of the interaction opportunities.

The major difference between the two observational procedures is that one, the Interaction Observation System only includes the information about the participants in an interaction and the number of exchanges between the participants. The second observational system, the APPLE (Anecdotal Processing to Promote the Learning Experience) provides further information about the behavior involved in the exchange. Specifically, the observer records what was said or done by each of the interacting parties to the other.

Perhaps the best way to illustrate the use of the event sampling procedures is to provide an example (see Figure 1).

Add Figure 1 about here

FIGURE 1A: APPLE Observation Form

ETS Integration Evaluation Project

STATE | SCHOOL DISTRICT | SCHOOL | TEACHER | TARGET CHILD | DATE | CYCLE | OBSERVER | PAGE

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT
1:30	NF	G	I	N-T-A	2		0	6	5					

Pupil Activity: Playing ball at recess.

Positioning: Sitting on grass

Orthopedic Equipment: None

Teaching Activity: NF Verbally encourages S to play.

	SOCIAL AFFECT + — 0
Antecedent Behavior:	
Target Pupil Behavior: S-NF kicks ball to NF	0
Consequence: NF-S Pushes ball back to S and says "Kick it" do you want to get up?	0

Sequence # 6

Link #'s 7

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

	SOCIAL AFFECT + — 0
Antecedent Behavior:	
Target Pupil Behavior: S-NF Resists getting up and throws ball to NF	0
Consequence: NF-S throws ball back to S and touches S and smiles	+

Sequence # 7

Link #'s 8

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

	SOCIAL AFFECT + 0
Antecedent Behavior:	
Target Pupil Behavior: S-NF Kicks ball to NF	0
Consequence: NF-S Pushes ball to S and says "kick it"	0

Sequence # 8

Link #'s 9

FIGURE 1A: APPLE Observation Form

ETS Integration Evaluation Project

STATE | SCHOOL DISTRICT | SCHOOL | TEACHER | TARGET CHILD | DATE | CYCLE | OBSERVER | PAGE

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

		SOCIAL AFFECT + — 0
Antecedent Behavior:		
Target Pupil Behavior:	S Kicks ball in different direction	0
Consequence:	NF-S Says "kick it to me"	0

Sequence #: 9

Link #'s: 10

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

		SOCIAL AFFECT + — 0
Antecedent Behavior:		
Target Pupil Behavior:	S-NF Kicks ball to NF and vocs	0
Consequence:	NF-S Kicks ball back to S and smiles	+

Sequence #: 10

Link #'s:

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY	ANTECEDENT ADULT	ANTECEDENT OTHER STUDENT	RESPONSE TARGET STUDENT	CONSEQUENCE ADULT	CONSEQUENCE OTHER STUDENT

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

		SOCIAL AFFECT + 0
Antecedent Behavior:		
Target Pupil Behavior:		
Consequence:		

Sequence #:

Link #'s:

STATE | SCHOOL DISTRICT | SCHOOL | TEACHER | TARGET CHILD | DATE | CYCLE | OBSERVER | PAGE

FIGURE 1B: INTERACTION OBSERVATION SYSTEM

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY
1:30	NF	G	I	N-T-A	2		0	6	5

Pupil Activity: Playing ball at recess

Positioning: Sitting on grass

Orthopedic Equipment: None

Teaching Activity: NF verbally encourages S to play

Interaction	S-NF	NF-S	S-NF	NF-S	S-NF	NF-S	S	NF-S	S-NF	NF-S	Seq.#	Link	Length
Social Affect	0	0	0	+	0	0	0	0	0	+	6		8
Interaction													
Social Affect													
Interaction													
Social Affect													

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

Interaction											Seq.#	Link	Length
Social Affect													
Interaction													
Social Affect													
Interaction													
Social Affect													

CONTEXT TIME	RESPONSIBLE PERSON	DIFFERENT TASKS	DIFFERENT LEVELS	SOCIAL SETTING	POSITION POSTURE	POSITION PLACE	ORTHOPEDIC EQUIPMENT	TEACHER ACTIVITY	TARGET STUDENT ACTIVITY

Pupil Activity:

Positioning:

Orthopedic Equipment:

Teaching Activity:

Interaction											Seq.#	Link	Length
Social Affect													
Interaction													
Social Affect													
Interaction													
Social Affect													

Reliability of Observations. During data collection, site visits were conducted by Peggy Thorpe, Joyce Gant and myself to ascertain the accuracy of field workers recording of interactions in each of the sites. A total of 133 joint observations involving one of us from the Princeton staff and field workers were conducted. Seventy five of the joint observations used the Interaction Observation System and 58 used the APPLE observation system. An average of ten paired observations were conducted with each field worker during the first data collection period.

The interobserver agreement data which we obtained involves the same variables which I will be reporting today in the subsequent analyses. Specifically, we obtained the average Pearson Product Moment Correlations between each field worker and the ETS criterion observers for the following measures:

1. The total number of interactive bids from the target student to other students or adults.
2. The total number of interactive bids from others to the target student.
3. The total number of interaction bouts. A bout is a continuous exchange of interactive bids between the same participants on the same topic.
4. The mean length of the interactive exchanges.

The average of the correlations between observers for each of these measures is presented in Table 2.

TABLE 2 - Average Correlations Between Rates
Recorded by Field Workers and by Criterion Observers

	Average Pearson r
Total S bids to others	.88
Total Other bids to S	.92
Total Interaction Bouts	.81
Mean Length of Interaction	.60

Subjects. A total of 235 severely handicapped students were observed during the first data collection period. By design, each of the students was to be observed with the Interaction Observation System 4 times in an integrated context and 2 times in a nonintegrated context. However, due to local variations in scheduling, illness, etc., only 199 severely handicapped students were observed in both integrated and segregated contexts. The remaining students were observed only in integrated contexts (N=16) or only in segregated contexts (N=20). The analyses reported here were based upon within student comparisons of social behavior in integrated and segregated contexts for the 199 severely handicapped students observed in both kinds of contexts.

Analyses

The findings reported here are based upon analysis of the Interaction Observation System data from the first data collection period. From that observational procedure the total frequency of interactive bids by severely handicapped students to other students and to adults was summarized. In addition, the total rate of interactive bids from adults and from other students to severely handicapped target students was summarized. The rate of social bids by severely handicapped students to others and the rate of social bids by others to severely handicapped students was compared using paired t-tests to determine if there were significant differences within children either in social output or social input depending upon whether they were in integrated versus nonintegrated social contexts.

Social Output from Severely Handicapped Students to Other Students

A social bid in our observational terms, is any behavior by the target student directed to another person. A social bid to the target student is any behavior by someone else directed toward the student. The complexity of behavior in a social bid can range from looking at another person to asking that person a complex question involving several statements. A social bid ends when the person directing the behavior pauses and the active social role switches to the person who was the target of the initial bid. A conversation is an ideal model for social interaction. It involves a continuing reciprocity based upon alternating between roles of speaker and listener.

The first analysis of our data simply asks whether there are different rates of social bids to other students in integrated versus segregated social settings. Keep in mind that the settings for our observations were nominated by teachers of the severely handicapped students to be the most socially interactive, whether integrated or segregated. Collapsing across all target students and sites we found significantly more behavior directed to other students by the target students

when in integrated settings in comparison to nonintegrated settings. The average number of social bids by the severely handicapped students in integrated settings was 6.79 bids per 10-minute observation (S.D. = 7.80) in comparison to 3.71 bids per 10-minute observation (S.D. = 5.97) in nonintegrated settings (t 5.52 df = 198, $p < .001$).

The second basic question regarding the interactive differences in integrated versus segregated settings was whether the target students received differential amounts of social bids from other students in integrated versus segregated settings. Collapsing across sites, we found that again there were within student differences in the rate of behavior directed toward them in integrated versus nonintegrated settings. Social bids from other students toward the severely handicapped students were more frequent in integrated (m = 9.93 S.D. 10.47) than in segregated (m = 3.07 S.D. = 5.43) settings (t = 8.68 df = 198, $p < .001$).

The quality of the interaction must be considered in addition to the rate of social bids between participants. In our observational procedures, each social bid was categorized in terms of its positive or negative character. We defined as positive any social behavior in which the person was laughing or smiling. We defined as negative any social behavior in which the person was crying, angry, or aggressive. Most of the interactive bids which we observed were classified as neutral. Only an average of 1 positive interaction per 10-minute observation and an average of less than 1 negative interaction in 10 observations were recorded. The rate of negative bids was so low that we will not consider them here.

There were significant differences in the rate of positive interactive bids from target students to other students in integrated versus nonintegrated contexts. In integrated settings, rate of positive bids from severely handicapped target students averaged across all sites was 1.12 (S.D. = 1.86). In nonintegrated settings these same target students emitted an average of only .69 bids per observation (S.D. = 2.01) to other students. The difference was statistically significant at $p < .01$ ($t = 2.76$, df = 198). Thus, in the fall data collection period the severely handicapped target students emitted more positive social bids when in integrated than when in nonintegrated settings.

Were there any differences in the quality of behavior which was directed to the severely handicapped students by other students when they were in integrated versus segregated settings? Again, the answer is yes. There were significantly more positive social bids from other students when the severely handicapped students were in integrated versus segregated settings. In integrated settings an average of 1.26 (S.D. = 2.34) positive bids per observation from other students were directed to the target students in comparison to .47 positive bids per observation (S.D. = 1.70) in the segregated context. This difference was statistically significant ($t = 4.55$, df = 198 $p < ,001$).

Adult-Child Interactions in Integrated and Segregated Settings

A major rationale for providing services in less integrated settings is that such settings provide the necessary additional resources required to accomplish educational goals with severely handicapped students. Thus, there is additional opportunity for interaction with teaching staff and support staff in settings which have higher ratios of adults to children.

Our data bear out the fact that in the most socially interactive contexts nominated by the teachers there is more interaction with adults in the segregated rather than in the integrated settings. Severely handicapped students emitted more behavior toward the teachers and aids in segregated (m = 9.44, S.D. = 9.08) settings than they did in integrated settings (m = 4.63, S.D. = 5.87) (t, 8.72 df = 198, $p < .001$). In addition, the severely handicapped target students received more interactive bids from teachers and aids in the segregated settings than they did in the integrated settings. An average of 14.92 (S.D. = 11.48) bids per observation from teachers or aids occurred in segregated settings in comparison to an average of 7.99 (S.D. = 8.69) in integrated settings. The difference was statistically significant (t = 8.82 df = 198, $p < .001$).

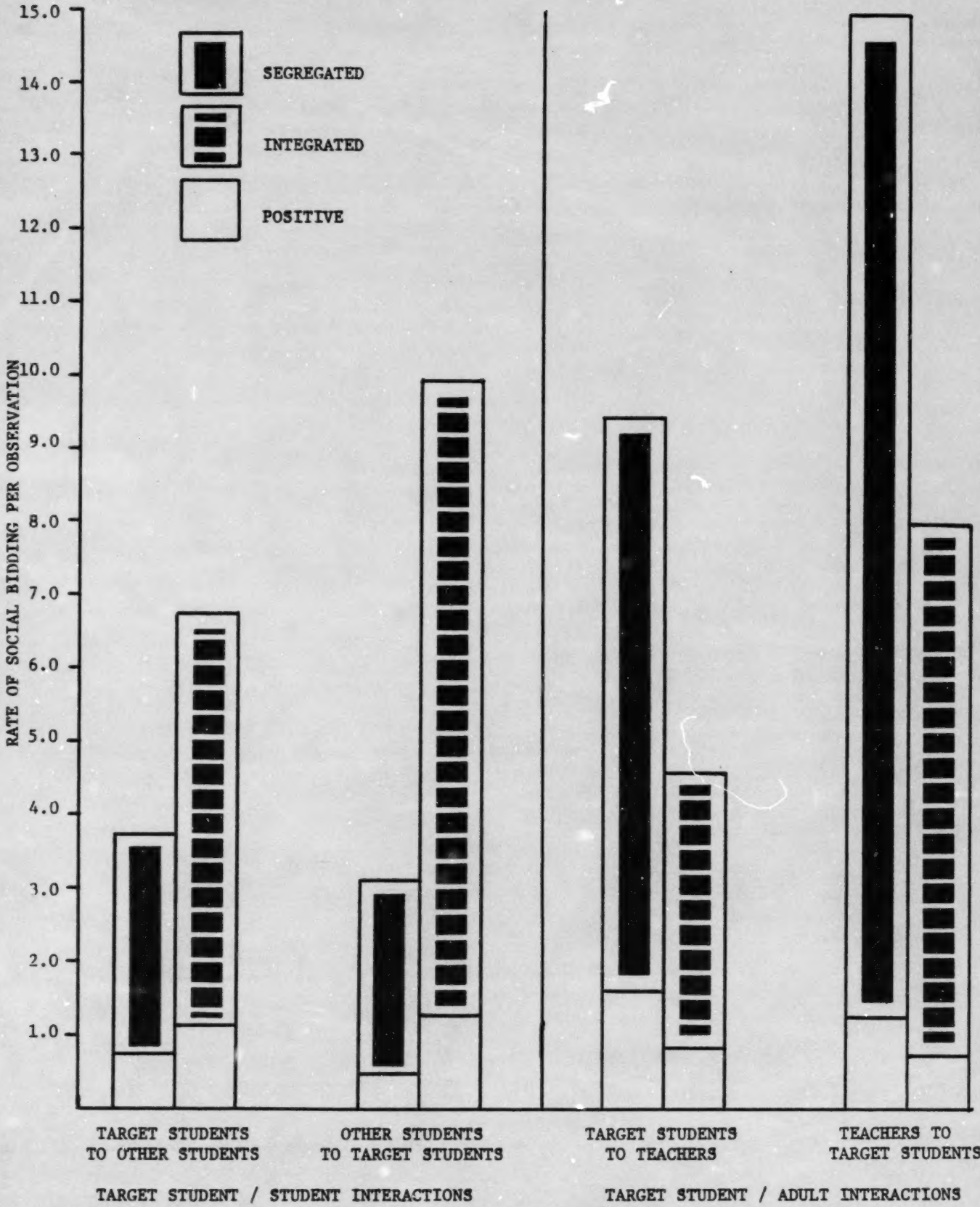


FIGURE 2: Comparison of social bids involving severely handicapped students in integrated and segregated settings

Attitudes of Nonhandicapped Students Toward Handicapped Students

Given that our observational data show that integration meant actual interaction between handicapped and nonhandicapped students, the question emerges what was the impact of such integration upon nonhandicapped students' attitudes toward the handicapped. To address this question, we identified two groups of nonhandicapped students. The first group was students from the integrated schools who had the opportunity to interact with the severely handicapped students. The second group was selected from schools in which no severely handicapped students were enrolled.

Teachers of severely handicapped students were asked to nominate nonhandicapped students who were most likely to have contact with severely handicapped students. Letters were then sent to the parents of these nominated students requesting their permission to allow their child to participate in this study. Students whose permissions were received were included in the study.

Once contact students had been selected, a sample of students who did not have contact with severely handicapped students were identified. These students were matched according to grade level and attendance in schools of similar size and socioeconomic characteristics. These students who did not have contact with severely handicapped students came from schools in which severely handicapped students were not enrolled. These "no contact" students were randomly selected from student rosters in matching grades. Parent permission was obtained according to the same procedure described for "contact students."

The number of contact and no contact students varied within each site as a function of the number of schools that were involved in the study and the number of students it was possible to include without causing undue disruption to each school.

Subjects. The 1981 version of Voeltz's (1980, 1982) Acceptance Scale was administered in the Fall of 1981 and the Spring of 1982 to 530 nonhandicapped students ranging in age from 5 to 18 years. 515 received valid scores on the Acceptance Scale. Of these, 328 students had both pretest and posttest scores. From this subsample, a total of 170 students (125 females and 45 males) had contact with severely handicapped students and a total of 158 students (83 females and 75 males) did not have contact. The data reported here apply to this subsample of 328 nonhandicapped students.

Attitude Measure

The instrument used in this study to measure students' attitudes toward handicapped students was the Acceptance Scale, 1981 version, developed by Luanna Voeltz (1980, 1982). Validity and reliability studies conducted on the instrument have consistently produced respectable results (Voeltz, 1980) and have demonstrated a positive relationship between regular education students' scores on the Acceptance Scale and their degree of actual contact with severely handicapped students (Voeltz, 1982).

The Acceptance Scale consists of a number of opinion statements which are read to the students in small groups. Students write their responses on answer sheets selecting one of three choices which indicates whether they agree with, disagree, or are unsure about the statements. Separate versions of the scale were administered to students in grades kindergarten to second grade (K-2), third to sixth grade (3-6), and seventh to high school seniors (7-12). The maximum score attainable on the three versions is 30, 60, and 64 respectively. Within each level there are a core set of questions about attitudes towards the handicapped. These questions are randomly phrased in both positive

and negative terms to discourage consistent yes or no responses. Also included are questions to assess students' ability to listen to the questions and respond to the instrument. Failure to respond accurately to these questions results in the invalidation of the scale and removal of that data from analysis. A third set of items, not included in the computation of the Acceptance Score, are those dealing with the students' general feelings about themselves and friends which could affect a students' attitude toward handicapped children and which can be analyzed as a separate factor.

Results

Repeated measures analysis of variance were separately conducted for each of the 3 versions of the Acceptance Scale. The two between groups factors were sex and group (contact versus no contact with SH students). Testing was the within subjects factor.

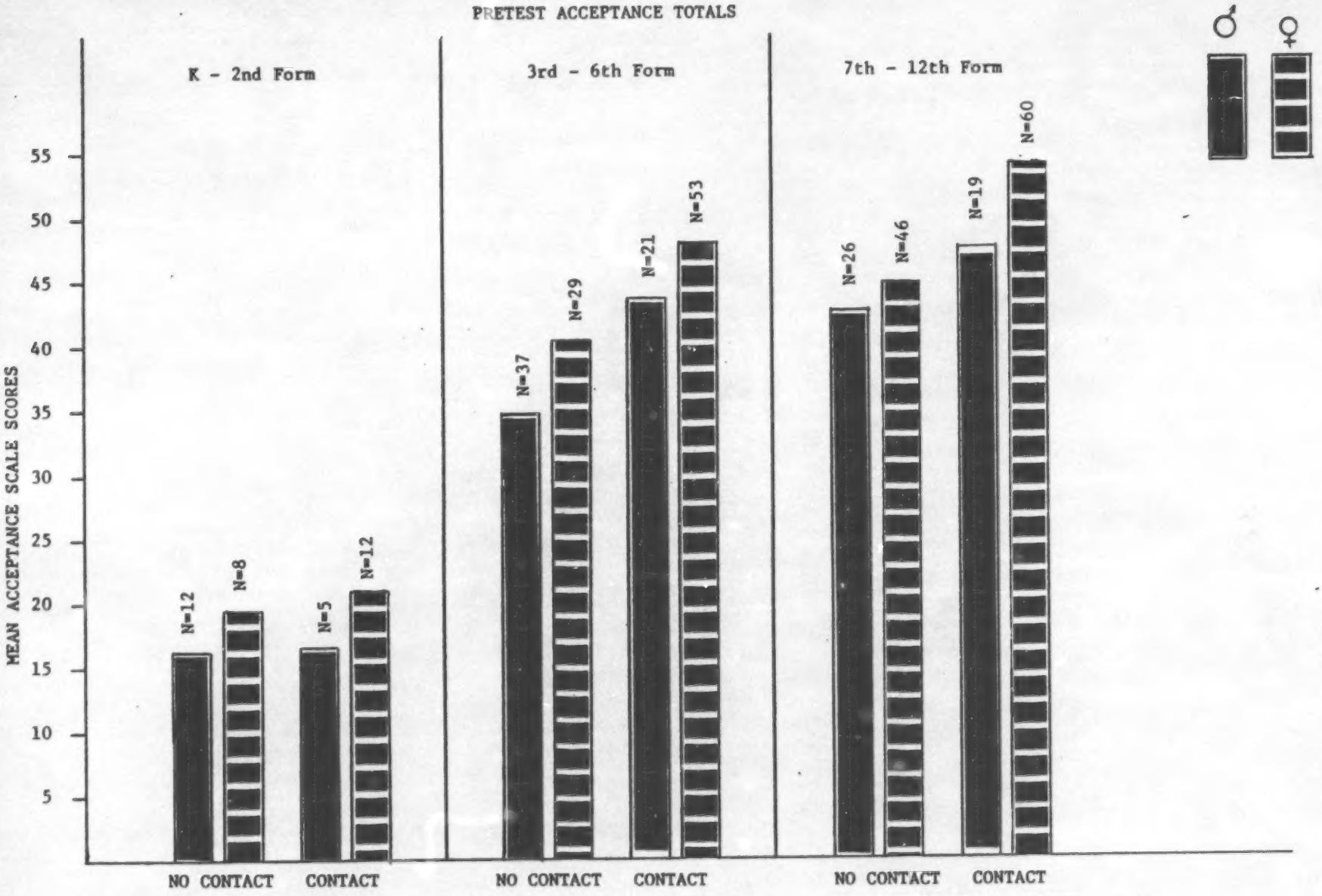
At the upper elementary (3-6) and high school (7-12) levels nonhandicapped students who had the opportunity to have contact with SH students had significantly more positive acceptance scores than students who did not have such contact. The effect of contact upon acceptance scores was significant at $p < .001$ (for grades 3-6 $F = 32.42$ df = 1, 136; for grade 7-12, $F = 25.68$ df = 1, 147). There was no difference between the contact and no contact groups in acceptance of the handicapped in grades K through 2.

Regardless of the grade level of students, girls responded more positively to opinion statements about handicapped students than did boys. For the K-2 students, the effect of sex was statistically significant at $p < .025$ ($F = 5.95$ df = 1, 33). For the grade 3-6 and for grade 7-12 students the effect of sex was significant at $p < .001$. Female students in grades 3-6 had more positive attitudes ($F=11.46$, df 1, 136) as did female students in grades 7-12 ($F=11.85$ df 1, 147).

There were no significant pretest versus posttest differences and no significant interactions between testing and contact groups or sex nor were there significant interactions between sex and groups. Means for pretest and posttest scores are depicted for groups by sex in Figures 3 and 4.

Thus, the data supports the notion that contact with severely handicapped students has a positive effect upon the attitudes of nonhandicapped students toward the handicapped. In subsequent analyses the average rate of interaction in the contact schools will be used to group nonhandicapped students into different levels of contact to determine if degree of contact is related to changes in acceptance scores of nonhandicapped students.

The present results are consistent with the data published by Voeltz (1980, 1982) which showed that acceptance of handicapped students is related to the integration of severely handicapped students into regular schools. These results extend the validity of the findings by Voeltz from one state (Hawaii) which is administered as a single school district to nine states and 14 school districts with a variety of types of integration of severely handicapped students.



38 FIGURE 3: Pretest Acceptance Scores as a Function of Group and Sex 39

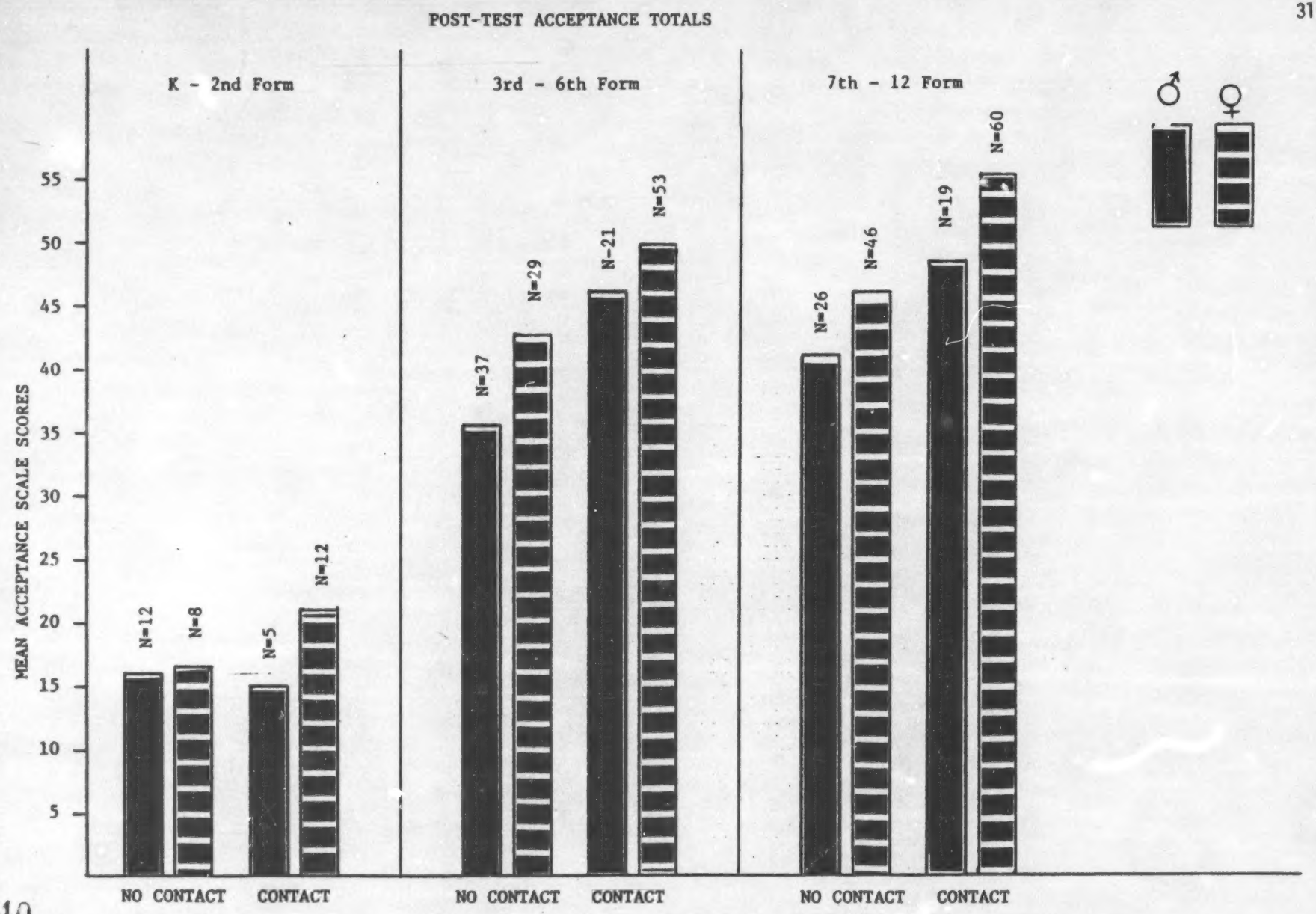


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FIGURE 4 : Posttest Acceptance Scores as a Function of Group and Sex

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Discussion

The results of the analyses of data from the Fall, 1981 data collection period lead to several conclusions about integration of severely handicapped students in regular educational settings. First, integrated contexts which include both severely handicapped students and nonhandicapped students can increase social stimulation from other students and result in more social behavior from the severely handicapped students to other students. Second, more of the social behavior from other students and to other students had a positive affect in integrated settings in comparison to segregated settings. Very little behavior with negative affect was observed in either type of setting. Third, there is considerable variation in the rates of social bids of all parties. The task remaining is to determine those aspects of the educational contexts with which this variation is associated.

The data on target student-teacher interaction indicates that teachers are stepping back within the integrated settings to allow the interactions between students to occur. The significantly greater amount of interaction between severely handicapped students and teachers in segregated settings suggests that it may be very difficult to encourage social interaction among students in contexts where all the students are severely handicapped. Nevertheless, the segregated contexts in which these observations were conducted were suggested by teachers as having the most student to student interactions. From the perspective of our earlier discussion of social competence, as severely handicapped students become increasingly skilled in understanding social situations, their interactions should require progressively less mediation by adults. We shall test this hypothesis in subsequent analyses by determining whether there is significantly less adult-student interaction in integrated social settings in the spring of 1982 in comparison to the fall of 1981.

The reality which we have observed in the project to evaluate the integration of severely handicapped students in regular educational settings is that such integration exists in very real interactive terms. Not only are severely handicapped students present in these schools and communities, they are becoming a part of the life of these schools and communities. The fact that nonhandicapped students in schools with the severely handicapped had significantly more positive attitudes toward the handicapped extends the previous statement to an empirical status beyond mere rhetoric.

The papers presented by each of the 14 participating sites describing the process by which severely handicapped students became a part of these schools and communities certainly attests to the fact that it is not an automatic occurrence of geography. A great deal of effort was required to prepare the community, the staff, the administrators, the parents, and the children themselves for truly functional integration. However, this effort does lead to positive interactions between handicapped and nonhandicapped students and these interactions have a richer quality than the interactions between handicapped students. Recalling Hobbs's (1975) definition of handicap, as an interaction between ability and context, the degree of handicap would decrease as the rate of transaction with others and the number of contexts for such transactions increase. In this sense, the programs which have been described truly reduce the degree of handicap of participating students.

Now that we have some idea of how many and what kinds of interactions occur in integrated settings, we will ask a series of questions about what is associated with more integration versus less integration for severely handicapped students in different schools. We've conceptualized these formative evaluation questions in terms of antecedent and concurrent features of educational contexts. Antecedent features are those things which have been done within a school district and school

which might facilitate or impede integration of severely handicapped students. Relevant questions involve the extent to which teachers, nonhandicapped students, handicapped students, parents and the community were prepared for integration and offerred continuing support for integration efforts.

The method for the remaining analyses will be multiple linear regression analysis used in a hypothesis testing (rather than in a stepwise hypothesis generating) framework. The idea would be to formulate a mathematical model which includes all of the information about the antecedent and concurrent features of the educational context which are relevant to a particular target student. The dependent variable at the first stage of the analysis is the rate (per minute) of that student's interaction with nonhandicapped students. There will be approximately 240 sets of such information, one set for each student. All of the information about educational contexts will account for some total proportion of variance in the rate of social interactions with nonhandicapped students. Thus, our next goal will be to determine which features tell us most about the rate of interactions.

A logic of exclusion will be used to determine if a particular feature is predictive of degree of integration. For example, suppose two school districts have an in-service training plan and ongoing support which specifically shows teachers how to promote interactions between handicapped and nonhandicapped students. We want to know if this plan over and above many other things (for example, the severity of handicap of the target students) is in and of itself a good generalizable strategy for promoting integration. The question is addressed by subtracting the information about the in-service training/ongoing support plan from our model containing all the other information about educational contexts. If the in-service plan was in fact important, then by eliminating it from our

mathematical model there should be a significant reduction in the amount of integration which is now explained. Such a significant reduction would tell us that in our final mathematical model we should include the information about in-service plans because over and above all the other information they account for a significant amount of the integration being achieved.

Such concerns are far removed from the daily practice of special education. However, I believe that the aggregation of a common set of data from a relatively large number of severely handicapped students in fourteen different educational programs can be used to make some statements about why there should be integration of severely handicapped students. In addition, I hope our subsequent analyses will enable us to extract some general variables which must be considered to better achieve such integration in other places. We look forward to the coming year in which we will address in more detail the process by which the integration of severely handicapped students in regular educational and community settings has been achieved.

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